

Hawley's Condensed Chemical Dictionary

ELEVENTH EDITION

Revised by

N. Irving Sax
and
Richard J. Lewis, Sr.



VAN NOSTRAND REINHOLD COMPANY
New York

BEST AVAILABLE COPY

Copyright © 1987 by Van Nostrand Reinhold Company Inc.

Library of Congress Catalog Card Number: 86-23333
ISBN: 0-442-28097-1

All rights reserved. Certain portions of this work copyright © 1930, 1920, 1919 by The Chemical Catalog Co., Inc. and 1981, 1977, 1971, 1966, 1956, 1950 by Van Nostrand Reinhold Company Inc. No part of this work covered by the copyright hereon may be reproduced or used in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or information storage and retrieval systems—without permission of the publisher.

Printed in the United States of America

Van Nostrand Reinhold Company Inc.
115 Fifth Avenue
New York, New York 10003

Van Nostrand Reinhold Company Limited
Molly Millars Lane
Wokingham, Berkshire RG11 2PY, England

Van Nostrand Reinhold
480 Latrobe Street
Melbourne, Victoria 3000, Australia

Macmillan of Canada
Division of Canada Publishing Corporation
164 Commander Boulevard
Agincourt, Ontario M1S 3C7, Canada

15 14 13 12 11 10 9 8 7 6 5 4 3

Library of Congress Cataloging-in-Publication Data

Condensed chemical dictionary.
Hawley's condensed chemical dictionary.

Rev. ed. of: The Condensed chemical dictionary.
10th ed./rev. by Gessner G. Hawley, 1981.

I. Chemistry—Dictionaries. I. Hawley, Gessner
Goodrich, 1905— II. Sax, N. Irving (Newton Irving)
III. Lewis, Richard J., Sr. IV. Title.
QD5.C5 1987 540'.3'21 86-23333
ISBN 0-442-28097-1

BEST AVAILABLE COPY

3-10% zinc, the solid
luble in acetone. Com-

xide or hydroxide and
itation from mixture
sodium naphthenate.
it in paints, varnishes,
e, and mildew preven-
waterproofing textiles,

-6.

or crystals, soluble in
55 (13C), mp 36.4C,
ion between 105 and

acid on zinc or zinc

explosion risk, strong

oagulant, reagent, in-

pylate.

exoate).

red, viscous liquid; d
luble in hydrocarbon

tan, greasy, granular
5% zinc; mp 70C; so-
bon disulfide, ligroin;
stible.

lutions of zinc acetate
fusion of zinc oxide

ishes (drier).

oxy-2'-hydroxy-5'-

ination of zinc and

: arsenate.

nc phosphate.

silicate.

2.

soluble in acids and
water, d 2.562 (24C),
mbustible.

Derivation: Interaction of zinc sulfate and sodium
oxalate.

Use: Zinc oxide, organic synthesis.

zinc oxide. (Chinese white; zinc white).

CAS: 1314-13-2. ZnO.

Properties: Coarse white or grayish powder, odor-
less, bitter taste, absorbs carbon dioxide from
the air, has greatest UV absorption of all com-
mercial pigments, d 5.47, mp 1975C, soluble in
acids and alkalis, insoluble in water and alcohol.
Noncombustible.

Derivation: (a) Oxidation of vaporized pure zinc
(French process), (b) roasting of zinc oxide ore
(franklinite) with coal and subsequent oxidation
with air, (c) similar treatment starting with other
ores, (d) oxidation of vapor-fractionated die cast-
ings.

Grade: American process, lead-free; French pro-
cess, lead-free, green seal, red seal, white seal
(according to fineness); leaded (white lead sul-
fate); USP; single crystals.

Hazard: zinc oxide fume is harmful by inhalation.
Zinc oxide powder reacts violently with chlori-
nated rubber at 215C. TLV (fume): 5 mg/m³
in air.

Use: Accelerator activator, pigment and reinforc-
ing agent in rubber, ointments, pigment and
mold-growth inhibitor in paints, UV absorber
in plastics, ceramics, floor tile, glass, zinc salts,
feed additive, dietary supplement, seed treat-
ment, cosmetics, photoconductor in office copy-
ing machines and in color photography, piezo-
electric devices, artists' colorant.

zinc oxychloride. A saturated solution of zinc
chloride and zinc oxide.

Use: Dentistry.

zinc palmitate. Zn(C₁₆H₃₁O₂)₂.

Properties: White, amorphous powder; d 1.121;
mp 100C; insoluble in water and alcohol; slightly
soluble in benzene and toluene. Combustible.

Use: Flatting agent in lacquer, pigment suspending
agent for paints, rubber compounding, lubricant
in plastics.

zinc perborate. Zn(BO₃)₂ with water of hydra-
tion.

Properties: Amorphous white powder, insoluble
in water but slowly decomposed by it, liberating
hydrogen peroxide.

Derivation: Interaction of sodium peroxide, boric
acid, and zinc salt, or of boric acid and zinc
peroxide.

Hazard: Fire risk when wet, in contact with or-
ganic materials.

Use: Medicine, oxidizing agent.

zinc permanganate. CAS: 23414-72-4.

Zn(MnO₄)₂·6HOH.

Properties: Violet-brown or black, hygroscopic
crystals, d 2.47, loses 5HOH at 100C, decom-
poses on exposure to light and air, soluble in
water and acids, decomposes in alcohol.

Grade: Technical (95% pure).

Hazard: Dangerous fire risk in contact with or-
ganic materials, strong oxidizing agent.

Use: Oxidizing agent, medicine (antiseptic).

zinc peroxide. (zinc dioxide).

CAS: 1314-22-3. ZnO₂.

Properties: White powder containing 45-60%
ZnO₂, balance ZnO; d 1.571; decomposes rapidly
above 150C; decomposes in acids, alcohol, ace-
tone; insoluble in water but decomposed by it.
Derivation: Action of barium peroxide on zinc
sulfate solution, followed by filtration.

Grade: USP (mixture of peroxide, carbonate, and
hydroxide), technical 50-60%.

Hazard: Severe explosion risk when heated; explo-
sive range 190-212C. Fire risk in contact with
organic materials; strong oxidizing agent.

Use: Curative for rubber and elastomers, pharma-
ceuticals, high-temperature oxidation.

zinc phenate. (zinc carbolate; zinc phenolate).

Zn(C₆H₅O)₂. (May be only a mixture of zinc
oxide and phenol).

Properties: White powder, soluble in alcohol,
slightly soluble in water. Combustible.

Derivation: By heating zinc hydroxide with phenol
and extracting with alcohol.

Hazard: Toxic by ingestion.

Use: Insecticide.

zinc-1,4-phenolsulfonate. (zinc sulfophenate; zinc
sulfocarbolate). CAS: 127-82-2.

Zn(SO₃C₆H₄OH)₂·8HOH.

Properties: Colorless, transparent crystals or white
granular powder; odorless; astringent metallic
taste; effloresces in air; turns pink on exposure
to air and light; loses water of crystallization
at 120C; soluble in water and alcohol.

Derivation: By heating zinc hydroxide with p-phe-
nolsulfonic acid.

Grade: Technical.

Hazard: Toxic by ingestion.

Use: Insecticide, medicine (antiseptic).

zinc phosphate. (zinc orthophosphate; zinc phos-
phate, tribasic). CAS: 7779-90-0.

Zn₃(PO₄)₂.

Properties: White powder, soluble in acids and
ammonium hydroxide, insoluble in water, d
3.998 (15C), mp 900C.

Derivation: Interaction of zinc sulfate and tri-
sodium phosphate.

BEST AVAILABLE COPY